On-Line Supporting Information

Single Nanoparticle Spectroscopy for Real-time *In Vivo* Quantitative Analysis of Transport and Toxicity of Single Nanoparticles in Single Embryos

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The on-line Supporting Information (SI) includes:

A. One table (**Table I**) summarizes representative and rare deformities of zebrafish treated chronically with given concentrations (0-2 pM) of NPs for 120 hours-of-post-fertilization (hpf) since their cleavage stage, showing dose-dependence of their deformation severities upon NP concentration.

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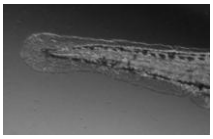
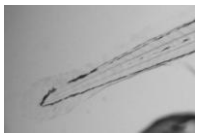
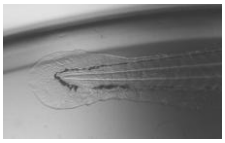
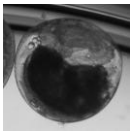
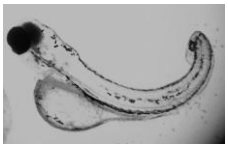
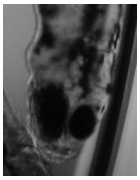
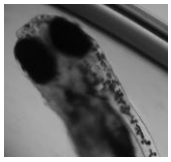
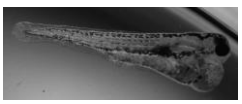
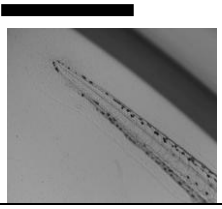
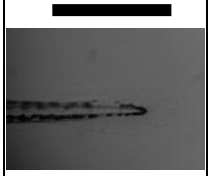
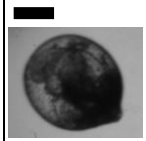
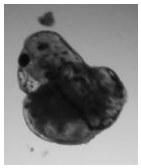
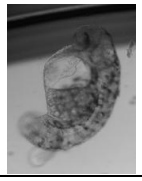
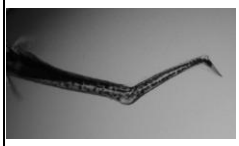
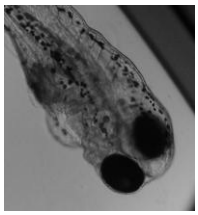
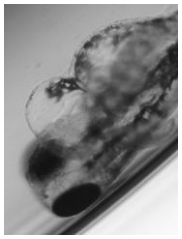
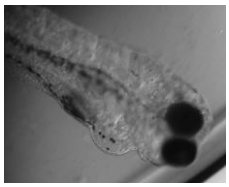
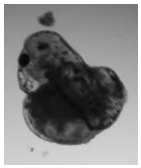
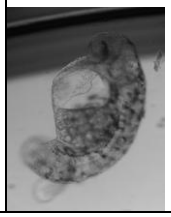
Table SI: Summary of Dose-Dependent Nanotoxicity of the Ag NPs (95.4±16.0 nm)

NP C (pM)	Images of Zebrafish	Number of Zebrafish with Severity Scale*					Dead
		0	1	2	3	4	
0	Control: Normal Development	32±2					4±1
2.0E-04	Finfold Abnormality♣	26±3	1			1	7±1
	Tail/Spinal Cord Flexure and Truncation♣			1	1♦		
2.0E-02	Finfold Abnormality♣	25±1	3				7±1
	Tail/Spinal Cord Flexure and Truncation♣			1♦			

	Eye Abnormality♣≠					1	
							
1.0	Finfold Abnormality	18±3		3		1	13±2
	   						
	Tail/Spinal Cord Flexure and Truncation				1♦		
							
	Eye Abnormality♣≠					2♦	
	 						
	Cardiac Malformation♣≠ and Yolk Sac Edema♣≠					2♦	
	 						
2.0	Finfold Abnormality	14±2		1		2	16±2
	  						

	Tail/Spinal Cord Flexure and Truncation♣					1♦		2
								
	Cardiac Malformation♣≠ and Eye Abnormality♣≠							3♦
								
	Cardiac Malformation♣≠, Eye Abnormality♣≠, Yolk Sac Edema♣≠							2♦
								

* We have developed and used our own scoring system, based upon the severe deviations from the normal development to semi-quantitatively rank deformity from 0 (normal) to 4 or 3 (the severest of finfold and tail abnormality), respectively. All other deformities (e.g., yolk sac edema, cardiac malformation and eye abnormality) are rated as 4, because these deformities are typically accompanied with finfold and tail abnormality.

♣ Multiple types of deformities observed in same zebrafish, which are repeatedly listed in respective category.

≠ Rare type of deformities and their deformation severities are unable to be rated.

Scale bars = 250 μm